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U. S. NAVY, OFFICIAL

GUAM, THIS CHAMORRO GIRL'S HOME, HAS BEEN THE SOLE U. S. ISLAND IN MICRONESIA (page 3)

U. S. Asks Trusteeship over Pacific Islands

BEHIND the former Japanese-mandated islands of the Pacific, for which the United States is asking sole trusteeship under the United Nations, lies a many-sided story of change and war, of archeological mystery, secret fortifications, and planned economic development.

The islands concerned include the Marianas, Marshall, and Caroline groups, pepper-shaker archipelagos that make up the region generally known as Micronesia. They are short on solid ground but long on ocean space. Scattered over a sea area larger than continental United States, the more than 1,400 islands, islets, and reefs are smaller in the aggregate than Rhode Island.

Jungle Covers Recent Battlefields, Ancient Ruins

These coral and volcanic dots of the South Seas are lands of perpetual summer, where betel-chewing natives in grass skirts or prim mission garb live in thatched huts, and breast the surf in outrigger canoes with sails of pandanus leaves.

The now peaceful, palm-fringed beaches and lonely hills of Micronesia belie its long, eventful history. The jungle is beginning to creep over the bomb scars and debris of such recent battlefields as Kwajalein, Saipan, Tinian, and the Palaus just as it long ago closed in on the mysterious stone ruins that archeologists credit to an advanced civilization of a prehistoric people.

"Key to the Pacific" . . . "stationary warships" . . . "island crossroads" are phrases that hint at the strategic location of the outlying empire which American forces wrested, piece by piece, from Japan.

As a Japanese mandate, these islands had extended Nipponese power close to the shores of the Philippines, the Netherlands Indies, and New Guinea. They surrounded the American outpost of Guam (illustration, cover) ceded by Spain in 1898 after its capture by United States forces in the Spanish-American War.

With the exception of Guam, Micronesia has been, within the last half-century, under the successive rule of Spain (illustration, page 4), Germany, Japan, and, as an occupying force, the United States.

Japanese Brought Changes and New Population

The three island groups were formally annexed by Spain in the 17th century. They were sold to Germany in 1899, when, following the Spanish-American War, the victorious United States elected to keep only Guam. They were German until 1914, when Japan, siding with the Allies in World War I, occupied them. After Allied victory, they were mandated to Japan under the League of Nations.

Japanese control brought tremendous changes to Micronesia. By 1936, when Japan withdrew from the League, the Japanese population had grown to more than 50,000, outnumbering the native inhabitants.

"Picture wives" from Japan were trained in a brides' school to make homes for the thousands of immigrants who annually moved to the new

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B. SCHLEIFER FROM THREE LIONS

A "TRADITIONAL" ÅLAND INTERIOR MIGHT BE TERMED "SWEDISH MODERN" IN AMERICA

The only truly modern touch in this Åland room is the radio (right). The gaily painted grandfather's clock, the chair built like a child's rocking horse—its footrest pegged to the rockers, window draperies which could have been hand-woven from Åland-grown flax, and home-woven carpet strips, are characteristic of a home in the Åland Islands where Swedish influence is strong. The cactus (left) is the only completely foreign note. It could not have grown in the thin, though fertile soil of these Baltic islands with their long blustery winters and their few cool weeks of summer (page 9).

Africa's Sukumaland Tries Self-Government

ESTABLISHMENT of a Sukumaland Federation that includes 50 chiefdoms of Tanganyika's Wasukuma tribes spotlights an African experiment in local self-government.

The tribes concerned occupy an area about the size of Switzerland. Their lands are situated south of Lake Victoria in Tanganyika, between Mwanza, on the south shore of the lake, and Tabora (illustration, page 6), to the south. Tanganyika has been under British mandate since World War I.

Judges Wear Brilliant Court Dress

A smaller but growing federation, composed of independent chiefs, began some years ago. Each chief retained authority in his own chiefdom. Under an elected chairman, they combined to form a joint treasury and a court of appeals which met in a courthouse open to winds and public.

The judges sat on a platform in carved chairs. Their robes, like togas of royal blue and purple, were heavily embroidered in gold. They also wore many-colored turbans, sandals of lion skin, and chiefs' insignia of shell anklets and bracelets.

From its treasury the federation supported a school where the sons of chiefs and headmen spent four years, living in villages. Here democratic principles were practiced, the headman being elected by the students whose court also enforced school discipline.

The Sukuma Federation funds maintained an experimental farm, because Wasukuma tribesmen, among the most cheerful and industrious natives, are engaged chiefly in farming and cattle raising. Improvements in seed and in transportation were responsible for the development of cotton and peanuts to exportable quantities. Trucks carry farm produce over a network of feeder roads to the railroad which extends 238 miles from Tabora north through the federation's territory to Mwanza. Far southeast of Tabora the rail line reaches the Indian Ocean at Dar es Salaam, capital of Tanganyika.

Tsetse Bush Separates Settled Areas

The area south of Lake Victoria is a high plateau with occasional outcroppings of granite. It is just south of the Equator; days are hot, nights cool. In addition to cotton and peanuts, the natives grow grain, yams, and cassava. Some lemons and sour apples are raised.

Houses are circular, with thatch roofs. They are grouped in clusters of two or three and surrounded by green euphorbia hedges. Fertile bands of land are densely settled, but these areas are separated by grasslands or by the "tsetse bush," regions exhausted by farming and abandoned to scrub growth. The tsetse fly, which spreads sleeping sickness, breeds and lives in the shady bush.

Sukumaland is not plagued by the fly as much as are other central African areas, but great drives are often launched against the bush. In one such campaign, 15,000 men, armed with axes and knives, attacked the undergrowth on an eight-mile front. In time to their songs, they hacked and cut their way through many miles of the scrub. The clean land left

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Pacific domain. Under a five-year plan begun in 1936, new communities and towns were built, Japanese style. Increases were made in the output of sugar cane, tapioca, pineapple, rubber, and other products.

Foreign visitors were discouraged after 1935. Several years later they were barred altogether from the islands, while Japan, in defiance of the mandate's ban against fortifications, built up sea and air bases.

Through the centuries the varied rulers of Micronesia, together with individual skippers who came that way— the old-time whalers and slavers, the traders and missionaries from many lands—have left their mark on the islands' place names, towns, and dress. The natives' attire ranges from loincloths to all-enveloping wrappers. In some sections, particularly the Marshalls, even swimmers feel that modesty demands neck ruffles and sleeves on bathing suits; in others, tattooing is almost the only "covering."

NOTE: The Carolines, Marianas, and Marshalls may be located on the National Geographic Society's map of the Pacific Ocean, on which each group appears in a large-scale inset. Write the Society's headquarters, Washington 6, D. C., for map list.

See also, "American Pathfinders of the Pacific," in the *National Geographic Magazine* for May, 1946; "Victory's Portrait in the Marianas" (17 full-color paintings), November, 1945*; "Our New Military Wards, the Marshalls," September, 1945; "South from Saipan," April, 1945*; "Springboards to Tokyo," October, 1944; and "Hidden Key to the Pacific," June, 1942*; and, in the GEOGRAPHIC SCHOOL BULLETINS, "Bikini, in Marshall Islands, Selected for Atom Bomb Test," February 18, 1946; "Where Are the Yanks? The Marianas," October 9, 1944; and "Marshall Islands, Markers of Micronesia's Boundary," January 24, 1944. (*Issues marked with an asterisk are included in a list of Magazines available to teachers in packets of ten for $1.00.*)

WILLARD PRICE

A SPANISH WALL, CRUMBLING BENEATH TROPICAL CREEPERS, RECALLS CASTILIAN RULE ON PONAPE

This 145-square-mile island was the largest mandated to Japan. Its natives make fierce warriors, as Spanish, German, and Japanese overlords can testify. Men slash and burn their flesh to show courage. They tip arrows with the sting ray's spine. For war dances, they oil their bodies.

Carlsbad Caverns, Magic Under New Mexico

MILLIONS of bats, spiraling like a black smoke cloud out of the depths of the southeast New Mexico earth, revealed to an inquisitive cowboy in 1901 the largest and most spectacular limestone caverns known to the world. Today visitors to Carlsbad Caverns National Park gaze in amazement at the same sight. They also go underground to a fairyland as magical as the surface above it is dull.

Water trickling for millions of years, each drop carrying away a particle of solid matter, carved Carlsbad out of the foothills of the Guadelupe Mountains. The caverns are a network of corridors and chambers, each with distinctive decoration. The largest, called the Big Room, is nearly 4,000 feet long, 625 feet wide, and portions of its ceiling arch 300 feet above the rugged, uneven floor.

Modern Lighting Shows up Ancient Sculptures

Adorning some of the rooms are stone towers and domes, make-believe birds, and fanciful flowers. Gleaming stalactites hang like crystal chandeliers from the lofty ceilings of castlelike formations. Folds of limestone —with the appearance of soft fabric—curtain passageways. Stalagmites, rising from the ground, meet stalactites, hanging from the ceiling, and form fantastic pillars.

Skillful lighting emphasizes weird outlines and magic carvings of limestone formations. It also brings out the varied colors which dripping water has left in the form of innumerable minute mineral deposits.

Jim White, the curious cowboy who found and explored the cave, did not succeed in making it widely known. In 1924 the National Geographic Society asked Dr. Willis T. Lee, of the U. S. Geological Survey, to go to Carlsbad to make a complete exploration. His articles in the *National Geographic Magazine* (see note) gave the caverns their first nation-wide publicity. The national park was set up in 1930.

Bats Turn Night into Day and Sleep Upside Down

About 32 miles of the caverns have been explored. Seven miles are open to the public. From the entrance (illustration, page 8), the trip through the caverns takes five hours. This includes a stop for a meal at the lunch room near the entrance to the Big Room. An elevator brings visitors up from the 750-foot level. Caves have also been discovered 900 and 1,320 feet below the earth's surface, but these have not yet been developed sufficiently to admit visitors.

At dusk the bats stream forth from their dark daytime haunts to the open air to spend the night foraging for their insect meals. During the day the furry little flying beasts hang head down from the roof of their private apartments in the caverns—190 feet below the surface. The public is not allowed to disturb their daytime rest.

Nature has air-conditioned the caverns. Their temperature is always 56 degrees, regardless of the weather above, where in winter the thermometer may sink to zero and in summer top 100.

The 67 square miles of the park's surface is semidesert. The som-

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behind such drives is not only free of the fly but is ready for resettlement —after years of lying fallow and being enriched by humus.

The natives are not permitted firearms and must rely on their spears, bows, and arrows in a country where lions and many other types of wild animals still roam freely.

NOTE: Tanganyika is shown on the Society's map of Africa.

For further information, see "British Plan Bases in Kenya and Tanganyika," in the GEOGRAPHIC SCHOOL BULLETINS for November 4, 1946.

FELIX SHAY

SAFARI IN SUKUMALAND: THE SUN IS ALREADY BRIGHT AT BREAKFAST TIME

The group has just finished a before-dawn, heat-avoiding march on the trail to Tabora, in west-central Tanganyika. A gaunt, gouty baobab tree gives scant shade. The porters will enjoy a longe noon rest.

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Peace Again Demilitarizes the Aland Islands

THE Åland Islands, which the Paris Peace Conference decided should be demilitarized, were in 1921 the subject of the first settlement of a major territorial dispute by the League of Nations.

The islands lie between the Baltic Sea and the Gulf of Bothnia (map, page 10). The chain begins about 25 miles east of the Swedish coast and peppers the waters eastward toward the southern tip of Finland with more than 6,000 assorted small islands, islets, and mere rocks.

The Farmer Takes a Boat from Island to Island

As a Swedish-speaking province of Finland, the islands were claimed by Sweden after World War I. In 1809 Russia had seized the group from Sweden and controlled them—as part of the Duchy of Finland—until 1917. When Finland was declared an independent nation in 1917, the Åland group was included as one of the ten departments. It is known to the Finns as Ahvenanmaa. When making this settlement, the League of Nations directed that the islands should be unfortified and self-governing.

The area of the islands totals only about 572 square miles. Nearly half of this is taken up by the largest, and name, island (the "mainland"). Åland Island is shaped somewhat like an anchor with the crown pointing southwest. It is intensively farmed in the central and southern part. A single farm may spread over several islets and the farmer goes by boat from grain field to potato patch to flax field.

Across a narrow strait southeast of Åland Island, lies Lemland, next in size. Claw-shaped Ekeroe, third largest, stands off the west coast of the main island.

Deeply cut by bays and fjords, Aland Island provides ample harbor for the yachts and motorboats that ply the channels of this Venice-like region. Reddish granite hills rise 300 to 500 feet, but most of the shores are low and thickly wooded with pine, fir, and birch. With the exception of Mariehamn, the capital, most of the island towns are concentrated in a cluster on the deeply indented eastern shores of Åland.

Åland's Sailing Fleet Was Largest in the World

Mariehamn (Maarianhamina to the Finns) stands at the base of a peninsula projecting from the south coast of Åland Island. Its 2,700 residents make the town the largest on any of the 80 or more inhabited islands. Less than a century old, the settlement retains no Russian characteristics except the name given it to honor the Tsaritsa Marie.

Mariehamn was a popular summer resort before the war. Visitors from Sweden and the Finnish mainland numbered as many as 10,000 a year. Excursion steamers brought holiday crowds from Stockholm for weekends of swimming, boating, and dancing in the double-harbored little town.

Before the war the merchant fleet of the Åland Islands, known as the last great fleet of sail in the world, brought to Europe such varied cargoes as grain from Australia and nitrates from Chile. Most of the trade was with Sweden, but there was no port where the sails of Åland were not known.

breroed cowboy has for company the coyote, fox, deer, rattlesnake, horned toad, and bobcat. Birds of the region include hawks, owls, wrens, quails, and mockingbirds. Across the sunbaked plain ran the old Butterfield Trail —the path of goldseekers of '49.

In April and May the monotony of dull gray-brown desert growth gives way to a blaze of color. Prickly pear opens its bright rose blossoms. Ocotillo (candlewood, Jacob's staff) bursts into flame-colored flowers at the tips of its wiry stalks. Acacia and creosote bush add their splashes of sunshiny yellow. Willow, wild cherry, oak, and maple trees grow in the slits of the canyons; pine and juniper on the higher hill slopes.

The park is open the year around. There is no overnight accommodation in the park but visitors will find hotels and automobile camps in towns along approach highways. From Carlsbad, 28 miles northeast, and El Paso, 153 miles southwest, buses run to the park. From U. S. 62 (also 180 in this section), which connects Carlsbad and El Paso and runs past the park's southeast corner, a short road leads to the cavern entrance.

NOTE: The Carlsbad Caverns National Park may be located on the Society's map of The Southwestern United States.

See also, "New Discoveries in Carlsbad Cavern" and "Bats of the Carlsbad Cavern," in the *National Geographic Magazine* for September, 1925; and "Visits to Carlsbad Cavern," January, 1924.

BRANSON DE COU FROM GALLOWAY

CARLSBAD'S NATURAL-ARCH ENTRANCE OFFERS VISITORS A WIDE WELCOME

Through an arch 40 feet high and 90 feet wide a ramp curves down like a series of giant hairpins to the caverns. Grades have been so engineered that even wheel-chair visitors can make the trip.

Comic Penguins Partial to Antarctic

THE penguin is the bird that walks like a man and swims like a fish. A solemn emperor penguin standing on an edge of Antarctic shelf ice is nature's full-dress comedian. Three of these troupers have been entertaining visitors at the Washington zoo since Admiral Byrd brought them there in 1939. Several more will join the original troupe if the current Antarctic expedition succeeds in bringing them back alive.

The flat-footed, flightless birds are partial to the Southern Hemisphere. Some species live as far north as the equatorial Galapagos Islands. Unknown in the Arctic, penguins in the Northern Hemisphere are counted by the half-dozen in zoos and resort exhibits.

Emperors Are King-size

The largest of nearly a score of living species are the emperor and king penguins. Their stalwart adults average a yard high, and include individuals that surpass 40 inches in height, 80 pounds in weight, and an estimated 30 years in age. Small species grow only 15 inches tall. Fossil discoveries indicate many species that are now extinct, among them a family of six-footers!

The rugged emperors incubate their eggs and raise their downy young in the darkness of Antarctic winter when temperatures range from 40 to 80 degrees below zero. At this time their enemies, the leopard seal and skua gull, are busy elsewhere.

Apparently outnumbering the emperors on Antarctica are the gregarious Adélies (illustration, page 12). They are smaller in size, and are found by the thousands in coastal and island rookeries. Men have learned about life in the co-operative Adélie communities by long visits among them, but have never successfully transplanted Adélies to the northern world.

The king penguins are common on South Georgia and other islands east of South America's tip. Gold-collared, lofty and snobbish in mien, they share rocky land with, but remain socially aloof from, the inquisitive, roly-poly species called Johnnies.

The Bird That Forgot How to Fly

Cooled by currents from Cape Horn, the blackfooted, or jackass, tribe of penguins lives on Africa's southwest coast. Capital of their Lilliputian kingdom is Dassen, a four-mile-long islet not far north of Capetown, where jackass penguins, like little men in stuffed shirts, dwell in season by the millions. Human Gullivers make a living gathering and selling their eggs for food.

Millenniums ago when Antarctica was green with vegetation, the penguin flew along its coasts. As the region's ice age came on, it continued to live from the sea, but as land enemies disappeared, it forgot to practice flying.

The body of the bird amphibian developed fat to protect it from extreme cold. Its bones grew heavier and stronger to cope with life at sea level. Its wings gradually changed to flippers useful in swimming and in maneuvering on ice, but useless in flight.

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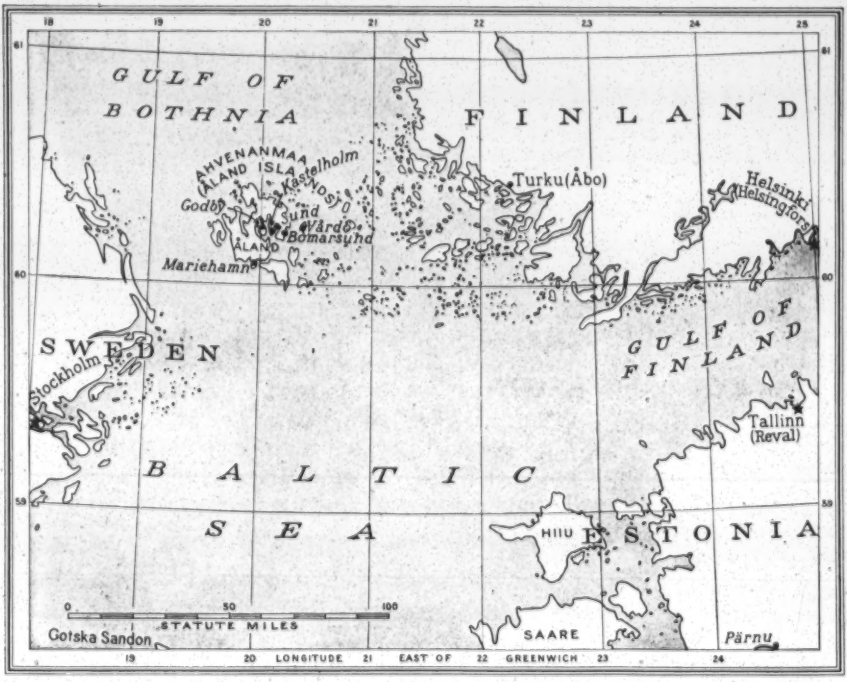
Mariehamn's harbor, on both sides of the narrow peninsula, accommodates tall-masted, square-rigged barks and schooners. Åland waters are only slightly salty, and island channels are frozen over from December to April. But the island ports are ice-free for a longer period than are those of the Finnish mainland.

Åland ships are good examples of "home-grown" products, built of timber from island forests, lined and canvased from fibers of the Åland flax fields, built by the hands of the seafaring descendants of Vikings.

Ålanders go to sea very young. Often crews are largely made up of mere boys. Even the officers are usually under thirty years of age. During the winter months a free nautical academy is maintained at Mariehamn. The cadets spend the rest of the year at sea.

Nearly all the Ålanders speak Swedish. In their religion, their costumes, customs, dances, and their general way of living (illustration, page 2), they are very much like the people of the land to the west from whom they are largely descended.

NOTE: The Åland Islands appear on the Society's map of Europe and the Near East. For additional information, see "Flashes from Finland" (19 photographs), in the *National Geographic Magazine* for February, 1940; and "Where the Sailing Ship Survives," January, 1935.



NEWMAN BUMSTEAD

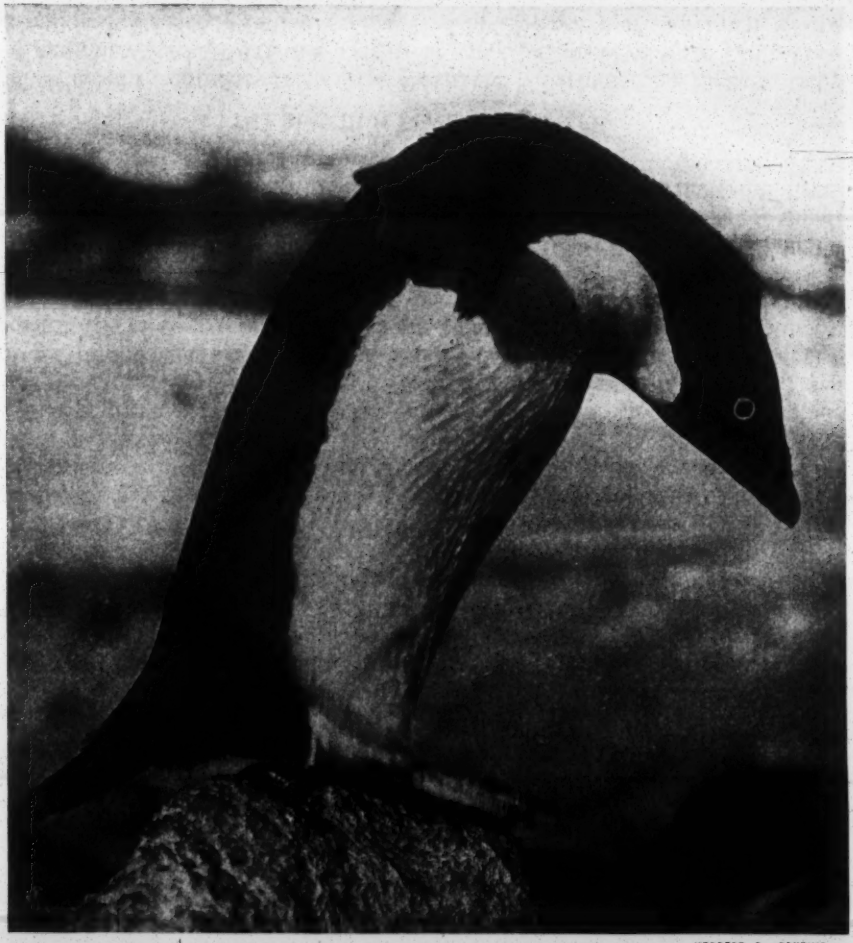
AHVENANMAA TO FINN, ÅLAND TO SWEDE, THE ISLES LIE MIDWAY BETWEEN THE TWO LANDS

Finland's shores appear to fringe out into a sprinkling of tiny isles, and then amalgamate again into the larger western islands of the Åland group. Mariehamn, the chief port, is conveniently located about midway between Stockholm and Turku to which ports it ships firewood from extensively timbered tracts, and also dairy products. Many cattle are raised on isles where grazing is possible.

If pursued or desiring speed, the penguin forsakes his comical waddle and toboggans over the snow or ice on his smooth-feathered dress shirt, using feet and flippers much as he does in the water. And if an affair of honor or romance demands it, he will engage in a vicious duel of beaks and flippers with rivals in his colony.

NOTE: Regions where penguins are found may be located on the Society's map of the Northern and Southern Hemispheres.

For additional information, see "My Four Antarctic Expeditions," in the *National Geographic Magazine* for July, 1939; "My Flight Across Antarctica," July, 1936; "Exploring the Ice Age in Antarctica," October, 1935*; and "Antarctica's Most Interesting Citizen," February, 1932.



HERBERT G. PONTING

WITH FLIPPERS FOR WINGS, AN ADÉLIE PENGUIN PREPARES FOR A THREE-FOOT "FLIGHT"

His button eyes are looking ahead to the next rock he will hop to. Flippers are all that are left of wings that once carried a lighter bird in graceful flight. The heavy body developed to help withstand the Antarctic cold. Emperor penguins, larger than Adélies, are not as numerous but are more generally known. They hatch their single egg on the ice, then male and female take turns nestling it between their bodies and their feet to keep it from actually touching the frigid surface.